

**Notice of Allowability**

Application No.

09/883,651

Examiner

Khanh Tran

Applicant(s)

GALINS, JOSEPH E.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed on 01/27/2005.
2. ☒ The allowed claim(s) is/are 1-16 and 18-21, wherein claim 21 has been renumbered claim 17.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

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1. The Amendment filed on 01/27/2005 has been entered. Claims 1-16 and 18-21 are pending in this Office action.

2. Claim 21 has been renumbered as claim 17.

### **EXAMINER'S AMENDMENT**

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Regarding claim 1, in line 11, "that" has been changed to -- than --.

Examiner's comments: The correction is necessary due to typographical error.

### ***Response to Arguments***

4. The terminal disclaimer filed on 01/27/2005 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of US Patent 6,574,285 B2 has been reviewed and is accepted. The terminal disclaimer has been recorded.

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5. Applicant's arguments, see pages 9-14 under Remarks of the Amendment, filed on 01/27/2005, with respect to claims 1-13, 15, 17 and 19 have been fully considered and are persuasive. The rejection of claims 1-13, 15, 17 and 19 has been withdrawn.

6. The objection of claim 13 has been withdrawn after claim 17 was cancelled to correct claim duplication.

7. The objection of claim 18 has been withdrawn after claim 18 was amended to correct claim duplication.

### ***Reasons for Allowance***

The following is an examiner's statement of reasons for allowance:

8. Claims 1-3 are allowed.

Regarding claim 1, claim 1 is allowable over the prior art of record since the cited references taken individually or in combination fails to disclose a communication system comprising an amplifier "having a non-linear characteristic that generates a non-linear distortion in the modulated signal, wherein the M-ary constellation is a 24 point constellation having 16 points defined by a first magnitude and 8 points defined by a second magnitude, wherein the second magnitude is less than the first magnitude". The closest prior art, McCallister et al. (US 6,097,764) disclosing a 16 phase-point, polar

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amplitude phase shifted keyed fully-rotationally-invariant constellation as shown in figure 4, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

9. Claims 4-6 are allowed.

Regarding claim 4, claim 4 is allowable over the prior art of record since the cited references taken individually or in combination fails to disclose a communication system comprising an amplifier "having a non-linear characteristic that generates a non-linear distortion in the modulated signal, wherein the M-ary constellation is a 32 point constellation having 16 points defined by a first magnitude, 12 points defined by a second magnitude, and 4 points defined by a third magnitude, wherein the second magnitude is less than the first magnitude and the third magnitude is less than the second magnitude". The closest prior art, Vandenabeele et al. (US 6,744,827 B1) disclosing a circular constellation scheme contains 32 constellation points distributed over 4 amplitude levels, A1, A2, A3 and A4, with equidistant amplitudes, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

10. Claims 7-9 are allowed.

Regarding claim 7, claim 7 is allowable over the prior art of record since the cited references taken individually or in combination fails to disclose a communication system comprising an amplifier "having a non-linear characteristic that generates a non-linear

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distortion in the modulated signal, wherein the M-ary constellation is a 64 point constellation having 24 points defined by a first magnitude, 16 points defined by a second magnitude, 16 points defined by a third magnitude, and 8 points defined by a fourth magnitude, wherein the second magnitude is less than the first magnitude, the third magnitude is less than the second magnitude, and the fourth magnitude is less than the third magnitude". The closest prior art, McCallister et al. (US 6,097,764) disclosing a 64 phase-point, polar amplitude phase shifted keyed fully-rotationally-invariant constellation as shown in figures 5-6, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

11. Claims 7-9 are allowed.

Regarding claim 7, claim 7 is allowable over the prior art of record since the cited references taken individually or in combination fails to disclose a communication system comprising an amplifier "having a non-linear characteristic that generates a non-linear distortion in the modulated signal, wherein the M-ary constellation is a 64 point constellation having 24 points defined by a first magnitude, 16 points defined by a second magnitude, 12 points defined by a third magnitude, 8 points defined by a fourth magnitude, and 4 points defined by a fifth magnitude, wherein the second magnitude is less than the first magnitude, the third magnitude is less than the second magnitude, the fourth magnitude is less than the third magnitude, and the fifth magnitude is less than the fourth magnitude". The closest prior art, McCallister et al. (US 6,097,764) disclosing a 64 phase-point, polar amplitude phase shifted keyed fully-rotationally-invariant

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constellation as shown in figure 9, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

12. Claims 13-14, 18 and 21 are allowed.

Regarding claim 13, claim 13 is allowable over the prior art of record since the cited references taken individually or in combination fails to disclose a method of encoding data comprising the step of "amplifying introducing a non-linear characteristic that generates a non-linear distortion in the modulated signal, wherein the M-ary constellation is a 24 point constellation having 16 points defined by a first magnitude and 8 points defined by a second magnitude, wherein the second magnitude is less than the first magnitude". The closest prior art, McCallister et al. (US 6,097,764) disclosing a 16 phase-point, polar amplitude phase shifted keyed fully-rotationally-invariant constellation as shown in figure 4, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

13. Claims 15-16 are allowed.

Regarding claim 15, claim 15 is allowable over the prior art of record since the cited references taken individually or in combination fails to disclose a method of encoding data comprising the step of "amplifying introducing a non-linear characteristic that generates a non-linear distortion in the modulated signal, wherein the M-ary constellation is a 32 point constellation having 16 points defined by a first magnitude, 12 points defined by a second magnitude, and 4 points defined by a third magnitude,

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wherein the second magnitude is less than the first magnitude and the third magnitude is less than the second magnitude". The closest prior art, Vandenabeele et al. (US 6,744,827 B1) disclosing a circular constellation scheme contains 32 constellation points distributed over 4 amplitude levels, A1, A2, A3 and A4, with equidistant amplitudes, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

14. Claims 19-20 are allowed.

Regarding claim 19, claim 19 is allowable over the prior art of record since the cited references taken individually or in combination fails to disclose a method of encoding data comprising the step of "amplifying introducing a non-linear characteristic that generates a non-linear distortion in the modulated signal, wherein the M-ary constellation is a 64 point constellation having 24 points defined by a first magnitude, 16 points defined by a second magnitude, 12 points defined by a third magnitude, 8 points defined by a fourth magnitude, and 4 points defined by a fifth magnitude, wherein the second magnitude is less than the first magnitude, the third magnitude is less than the second magnitude, the fourth magnitude is less than the third magnitude, and the fifth magnitude is less than the fourth magnitude". The closest prior art, McCallister et al. (US 6,097,764) disclosing a 64 phase-point, polar amplitude phase shifted keyed fully-rotationally-invariant constellation as shown in figure 9, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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